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Mr. Keen.

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Forest Entomology.

Forest Insect Field Station,
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CIRCULAR OF INFORMATION ON THE MOUNTAIN PINE BEETLE

Because the publications on this insect are out of print, and to recall the attention of the timbermen to the economic importance of the mountain pine beetle (Dendroctonus monticolae Hopk.) as an enemy of our pine forests, some information relative to its habits, control, etc., is given inthis circular. The mountain pine beetle attacks and kills healthy mature western white pine, western yellow pine, lodgepole pine, and sugar pine. In the past, enormous losses have occurred within our pine forests as a result of the work of this insect. In 1911, 1912, and 1913, during an epidemic of this beetle a large per cent of the western white pine stands of Idaho and Montana was destroyed. Throughout the forests of Montana heavy losses have occurred in the yellow pine and lodgepole pine stands. Within one large drainage of that state practically all of the lodgepole pine above a diameter of 8 inches, and at least 13 per cent of the mature yellow pine has been killed by this beetle during the past ten years.

The adult insect, which is a stout, black, cylindrical barkbeetle about 1/5 of an inch in length, bores through the outer back and constructs a long perpendicular egg gallery in the thin layer of cells directly between the living bark and the wood. Along this gallery eggs are deposited which soon hatch into small grubs, or larvae. These white, legless larvae excavate short mines at right angles to the egg gallery which terminate in a cell in which the transformation to the adult beetle takes place. The combined result of these egg galleries and larval mines is a complete girdling of the tree which causes its death.

When the transformation is complete the new adults bore emergence holes through the outer bark. By boring away the

intervening bark between the cells, several beetles may use the same emergence hole, or take advantage of cracks or other openings through the bark. The principal emergence of the beetles occurs during the latter part of July and during August when they fly to and attack the living trees.

Insect infested trees can be located by the faded foliage, by boring dust at the base of the trees, or by the pitch exudations at the mouth of the entrance tunnels. In different localities and tree species the discoloration of the needles varies, so that it is always necessary to examine trees in order to determine the stage of insect development corresponding to the foliage color. Care must also be used in distinguishing between the dying or recently dead trees containing beetle broods and old dead trees from which the beetles have emerged.

In considering the thoughts of control it might be remembered that, though it is impossible to save a tree after it has once been attacked and is dying, the broods of the beetle can be destroyed which will contribute to the prevention of the dying of more trees. Though nature aids materially in the prevention of epidemics, by providing natural enemies of these destructive insects, under favorable conditions normal infestations increase very rapidly resulting in serious losses. Were it not for the natural reduction the insects developing from one tree could attack and kill several others of the same size. As the larval mines and pupal cells of the mountain pine beetle are constructed in the inner bark it is only necessary to remove the bark before the new adults are mature, in order to expose to the elements which kill them. This is accomplished by felling the infested trees and removing the bark from the infested portion of the trunks, leaving the logs to be utilized for lumber.

For specific information on this, or other forest insect problems, timbermen are referred to the forest insect stations at Northfork, California, Ashland, Oregon, Coeur d'Alene, Idaho, and Colorado Springs, Colorado, which are maintained by the Federal Bureau of Entomology. The officers in charge of these stations are always anxious to be of assistance in problems of Forest Entomology.

Approved:

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